H. Thayer,

Treating Wood.

No. 45,538. Patented Dec 20, 1864.

Fig: 1.

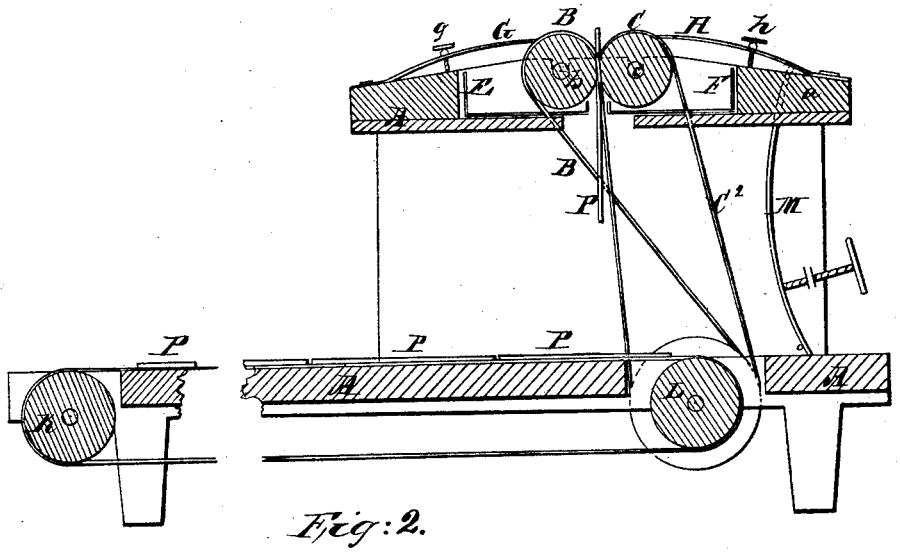
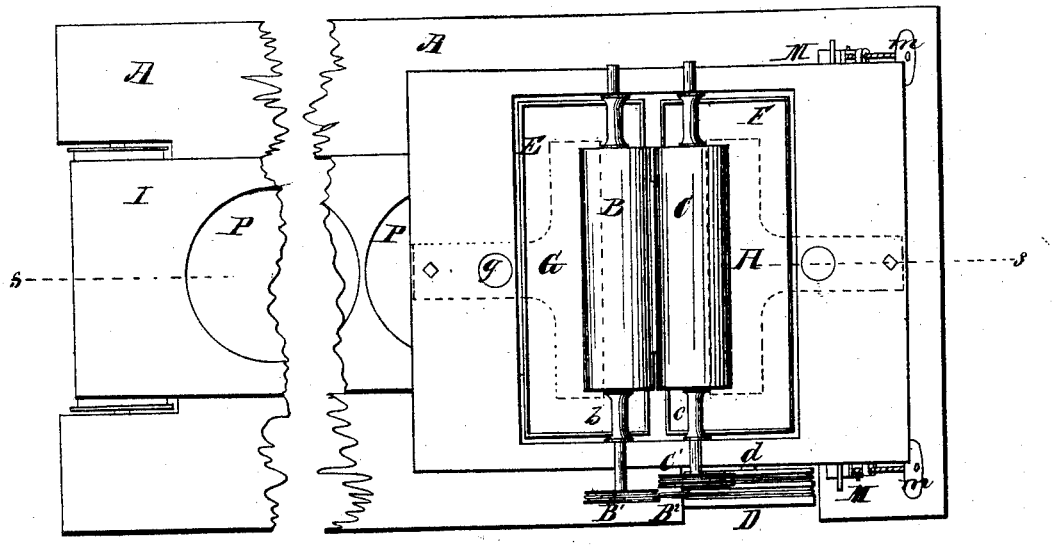


Fig: 2.



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UNITED STATES PATENT OFFICE.

HORACE THAYER, OF WARSAW, NEW YORK.

IMPROVED END OR HEAD FOR BOXES, CASES, &c.

Specification forming part of Letters Patent No. **45,538**, dated December 10, 1864.

To all whom it may concern:

Be it known that I, HORACE THAYER, of Warsaw, in the county of Wyoming and State of New York, have invented a certain new and useful article of manufacture for ends or heads for blacking-boxes and analogous articles, which combine the essential qualities of cheapness, stiffness, strength, impermeability, and elasticity in a higher degree than any before known; and I do hereby declare that the following is a full and exact description thereof.

The cylindrical boxes used for blacking have so little length in comparison with their diameter that the ends or heads are of much greater area than the cylindrical surface. The temporary purpose for which such boxes are required, and the low price at which the box with its contents must be sold at wholesale, renders it desirable to employ the cheapest possible material for these heads, but they require rigidity, and the oily character of the blacking necessitates the use of an impervious material. The three patents issued to me, dated the 21st of June, 1864, set forth means of cheaply and rapidly securing the parts of such boxes together and allow the use of wood or analogous soft heads. I am now prepared to describe fully what I find to be the best heads and my means of producing such with a high degree of economy.

My heads are made of soft wood. My method of manufacture leaves them plain, smooth, springy, and with their pores filled with insoluble varnish. They are by far the best heads yet known to me. I am now producing them under the present high prices of labor and material at a cost to me of five cents per hundred for the smallest heads and ten cents per hundred for the largest.

To enable others skilled in the art to use my invention with success, I will proceed to describe in detail the operation of making heads of the smallest ordinary size, which are about two and one-half inches in diameter.

I take newly-cut bass-wood, one of the softest and most easily worked woods, and saw it into short planks or balks, having a thickness a little greater than the diameter of the box, or about three inches, and a length of about eighteen inches. I steam these some hours, until affected through, and then by means of a sharp knife, very thin at the edge and operated by power, I slice each, beginning at one edge, so as to form it into slabs or sheets a little more than one-sixteenth inch thick and three inches wide. I pile these upon a rack with small sticks between, and let them stand exposed to the sun and air four days. I then transfer the racks with their contents to a drying-house heated to about 120° Fahrenheit, more or less, and let them remain a few hours. By this time the material is sufficiently seasoned for the subsequent operations, and the method adopted in dividing it has left it flat and smooth and with its strength unimpaired, and the steaming has so far changed the nature of the wood as to leave it more pliable and less likely to split or check. From these sheets the disks or heads are next cut of the desired diameter by rapidly-revolving cutters, to which cutters the wood is presented by hand or otherwise; but I gage the cutters so that they do not cut quite through the wood. After the sheet has been thus scored or marked out, it may still be handled with the disks in their places, ranged in a line close together and occupying nearly its entire substance. A slight tap on each, either by hand or by machinery, now removes the disks and leaves skeleton frames convenient for use as fuel. The disks are next tumbled for an hour, more or less, in a tumbling-cylinder analogous to that used for smoothing small castings, but which may be made much larger. This operation smoothes the whole, and especially the edges if any roughness resulted from the breaking of the few fibers of the wood. The disks are next varnished on both sides and partially dried. I use for this varnish either the ordinary shellac dissolved in alcohol, with lamp-black added to give it a body and color, or a cheaper coating made by dissolving rosin in benzine or naphtha and adding a little lamp-black. I prefer to apply this, and to partially dry it thereafter by the means of a machine invented by one of my assistants, Mr. Levi L. Martin, and which will be described below; but other means may be employed in any instance, if desired. I now tumble the nearly-dried heads for a period varying from one to two or more hours, according to their condition. They finish drying as they tumble, and emerge evenly varnished and evenly dried. They are now ready for use or shipment, and on being put in use in the boxes and receiving

the blacking and remaining in contact therewith for any period they suffer no sensible change.

None of the tools or apparatus required in the above process or method of manufacture seem to require drawings or minute description, except the varnishing-machine referred to. This is so novel and so effective and performs its work so rapidly and cheaply, and withal so completely avoids any waste of the varnish upon other objects, and even its accumulation in undue quantities on the edges of the heads, as to add very materially to the economy which is so conspicuous in my method of manufacture.

I will briefly describe that machine by the aid of the drawings.

Figure 1 is a vertical longitudinal section on line S S in Fig. 2, and Fig. 2 is a plan view.

Similar letters of reference indicate like parts in all the figures.

B and C are rollers of vulcanized rubber mounted on shafts *b* and *c*, and supported in open bearings in the frame-work of the machine, as represented. Each is provided with a pulley, by the aid of which it is turned by a belt from a driving-pulley below. B′ and C′ are the driven pulleys. B^2 and C^2 are the belts, the belt B^2 being crossed. D is the pulley, which gives motion to the whole. The shaft *d*, which carries the pulley D, may be turned by any convenient power.

A is the fixed portion of the framing, and *a* is a part adapted to slide freely back and forward to a limited extent thereon. The roller B is mounted on the fixed part A, and has no motion but simple rotation. The roller C is mounted on the sliding part *a* and slides with the latter.

M M are springs adapted to press the sliding part *a* and its connections toward the fixed part, as indicated. It may be adjusted by means of screws *m*.

E and F are tanks adapted to contain varnish. They are supported on the framing, the tank E on the fixed framing A and the tank F on the sliding frame *a*. Each is so mounted as to inclose the lower side of one of the rollers, the tank E holding up varnish to coat the surface of the roller B as it revolves, and the tank F performing a similar office for the roller C.

G and H are scrapers adjusted by screws *g* and *h*, as indicated, and each adapted to scrape the surfaces of one of the rollers. The scraper G may be adjusted to leave any given small thickness of varnish on the roller B, and the scraper H may be adjusted to leave a similar or a different thickness of varnish on the roller C.

The heads are inserted one by one between the rolls on the upper side, either by hand or otherwise, and receive a smooth and uniform coating from one or both rolls as they pass between. They emerge on the lower side, and falling on the apron I, (which runs around the drums K and L, and may be of any length desired,) they are slowly carried away, drying meanwhile, and are finally dropped.

Having now fully described my invention, what I claim as new, and desire to secure by this Patent, (C,) is as follows:

As a new article of manufacture and commerce, the ends or heads herein described for boxes and analogous structures, the same being formed of wood or analogous porous material, coated or filled with an insoluble varnish, so as to combine the qualities of cheapness, elasticity, stiffness, and impenetrability, as herein set forth.

Witnesses: HORACE THAYER.

WASHINGTON MARTIN,

DENNIS CHASE.